SPECIAL STATISTICS

- AQUACULTURE
- AGRICULTURAL LABOR
- FERTILIZER CONSUMPTION

85

AQUACULTURE: Number of operations, production, and value, by counties, 1995-99

	Number	Production			Value				
Year	of operations	Shellfish 1	Finfish	Algae	Shellfish	Finfish	Algae	Other ²	Total
	1,000 pounds				1,000 dollars				
State									
1995	107	414.6	125.2	869.8	3,462.4	769.5	8,685.9	388.7	13,306.5
1996	117	616.8	129.2	1,245.9	4,315.5	1,191.6	9,082.4	1,066.2	15,655.7
1997	110	NA	NA	NA	4,960.0	950.0	8,295.0	2,395.0	16,600.0
1998	105	700.4	218.0	1,324.7	4,959.9	958.0	8,294.9	2,406.9	16,619.7
1999	100	996.0	215.0	1,193.0	6,393.0	1,010.0	7,883.0	2,816.0	18,102.0
Counties	s:								
Hawaii									
1995	40	262.1	40.0	753.8	2,569.6	342.3	8,428.7	61.6	11,402.2
1996	43	432.8	66.6	1,113.1	3,188.7	764.9	8,779.1	464.6	13,197.3
1997	NA	NA	NA	NA_{3}	NA	NĄ	NA_{3}	NA	13,380.0
1998	44	485.3	44.8	3	3,647.5	3	3	1,476.4	13,382.5
1999	42	475.0	86.0	1,022.0	3,513.0	562.0	7,473.0	1,829.0	13,377.0
Honolu	lu								
1995	38	112.5	75.1	116.0	652.6	389.0	257.2	326.4	1,625.2
1996	44	124.0	47.5	132.8	776.8	373.9	303.3	601.6	2,055.6
1997	NA	NĄ	NA	NĄ	NA	NĄ	NĄ	NA	2,120.0
1998	46	3	130.5	3	1,013.4	3	3	279.5	2,099.6
1999	44	222.0	114.0	3	1,370.0	408.0	3	241.0	2,333.0
Kauai									
1995	11	NA	NA	NA	NA	NA	NA	NA	NA
1996	11	NA	NA	NA	NA	NA	NA	NA	$NA_{_3}$
1997	NA	NA	NA	NA	NA	NA	NA	NA_{3}	
1998	3		3			3		3	3
1999³									
Maui									
1995	18	40.0	10.1	0	240.2	38.2	0	.7	279.1
1996	19	60.0	15.1	NÄ	350.0	52.8	NA	NA	402.8
1997	NA	NA ₃	NĄ	NA 3	NĄ	NA ₃	NA 3	NA 3	3
1998	12		3		3				3
1999	10	3	3	3	3	3	3	3	3
	nt available								

NA = Not available.

¹ Some shellfish products sold by pieces, pounds not given.
² Non-food products: ornamental fish, seed stock, other. Items not sold by weight.

³ Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

Source: 1995 and 1996, Hawaii State Department of Agriculture, Aquaculture Development Program.

AGRICULTURAL LABOR: Workers on farms, annual and quarterly averages, State of Hawaii, 1995-99 1

	Total	Hired workers by type of farm				
Year	Self-employed farm operators	Unpaid workers ²	Hired workers ³	Sugar	Pineapple	Other
1995	2,700	1,000	7,300	1,700	1,200	4,400
1996	2,700	1,000	7,400	1,400	1,200	4,800
1997	2,700	1,200	7,000	1,200	1,300	4,500
1998	2,700	1,200	7,400	1,200	1,200	5,000
1999	3,000	1,200	7,600	1,200	1,300	5,200
January	2,600	1,100	7,100	1,150	1,150	4,800
April	2,500	1,100	6,900	1,200	1,200	4,500
July	3,500	1,200	8,000	1,200	1,450	5,350
October	3,400	1,200	8,400	1,050	1,250	6,100

¹Averages are based on data collected from the January, April, July, and October surveys.

AGRICULTURAL LABOR: Annual average number of workers on farms, by counties, 1995-99 1

Year	Self-employed farm operators	Unpaid workers ²	Hired workers	Year	Self-employed farm operators	Unpaid workers ²	Hired workers
	idiii opoidioio	Workers	WOINGIG		Tarri operatore	Workers	WOIKOIO
Counties	::						
Hawaii				Kauai			
1995	1,750	550	2,550	1995	200	150	1,000
1996	1,800	600	2,600	1996	200	100	1,000
1997	1,800	700	2,450	1997	200	100	850
1998	1,750	650	2,550	1998	200	100	800
1999	1,850	600	2,400	1999	250	100	900
Honolul	lu			Maui			
1995	500	250	1,900	1995	300	100	1,850
1996	450	200	2,000	1996	300	150	1,850
1997	500	300	1,900	1997	300	100	1,850
1998	450	250	2,100	1998	350	150	1,950
1999	500	300	2,100	1999	450	200	2,200

¹ Averages are based on data collected from the January, April, July, and October surveys.

²Includes family members and others working 15 or more hours per week.

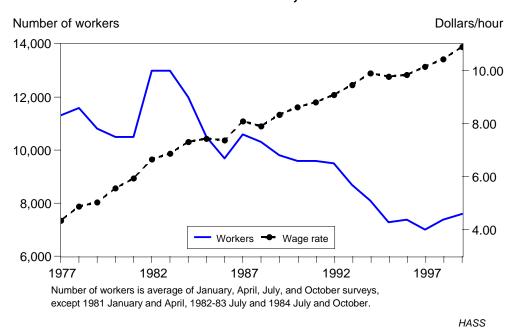
³ Sum of hired workers by type of farm may not add to hired workers total due to rounding.

² Includes family members and others working 15 or more hours per week.

AGRICULTURAL LABOR: Wage rates by type of work, annual and quarterly averages, State of Hawaii, 1995-99

	Type of work performed						
Year	All	farms	Farms with 1-9 workers				
i eai	Field/livestock	All hired workers	Field/livestock	All hired workers			
4005	0.00	0.70	7.00	7.70			
1995	8.60	9.76	7.08	7.72			
1996	8.62	9.83	6.95	7.50			
1997	8.83	10.15	6.82	7.65			
1998	8.97	10.41	7.27	8.03			
1999	9.38	10.88	7.76	8.63			
January	9.35	10.80	7.68	8.67			
April	9.38	10.93	7.57	7.80			
July	9.53	10.88	8.17	8.61			
October	9.24	10.91	7.51	9.19			

Hired Work Force and Average Wage Rate, State of Hawaii, 1977-99



FERTILIZER: Commercial consumption, State of Hawaii, 1995-99

Tuna	Year ending June 30						
Туре	1995	1996	1997	1998	1999		
Commercial fertilizers - Short tons	;						
Total fertilizer	109,478	109,478	109,478	112,762	98,103		
Total N	16,828	16,828	16,828	17,333	15,080		
N in multi-nutrients	6,786	6,786	6,786	6,990	6,081		
Total P ₂ 0 ₅	5,719	5,719	5,719	5,890	5,125		
P ₂ 0 ₅ in multi-nutrients	5,608	5,608	5,608	5,776	5,025		
Total K ₂ 0	12,991	12,991	12,991	13,381	11,641		
K₂0 in multi-nutrients	9,006	9,006	9,006	9,276	8,071		
Total plant nutrients	35,538	35,538	35,538	36,604	31,845		
Average analysis	33.7	33.7	33.7	33.7	33.7		
Total in multi-nutrients	21,400	21,400	21,400	19,177	19,177		
Selected single-nutrient materials - Short tons of material							
	40.000	40.000	40.000	40.700	40 244		
Nitrogen solutions	18,236	18,236	18,236	18,783	16,341		
Urea	2,480	2,480	2,480	2,554	2,222		
Ammonium sulfate	909 172	15,285 172	15,285 172	15,744 178	13,697		
Concentrated superphosphate					155		
Secondary and micronutrients	4,144	4,144	4,144	4,269	3,714		
Potash materials (chloride) Potash materials (sulfate)	494 845	494 845	494 845	509 870	443 757		
Consumption of fertilizers by							
class - Short tons of material	00.400	00.400	00.400	00.075	05 470		
Total dry single-nutrient	28,423	28,423	28,423	29,275	25,470		
Total dry multiple-nutrient	32,936	32,936	32,936	33,924	29,514		
Fluid single-nutrient	25,583	25,583	25,583	26,350	22,925		
Fluid multiple-nutrient	18,392	18,392	18,392	18,943	16,481		
Total single-nutrient	54,005	54,005	54,005	55,625	48,394		
Total multiple-nutrient	51,328	51,328	51,328	52,868	45,995		
Consumption of multiple- nutrient fertilizers - Short tons of material							
N-P-K	45,031	45,031	45,031	46,382	40,353		
N-P	6,297	6,297	6,297	6,485	5,642		

Source: The Association of American Plant Food Control Officials.

DEFINITION OF TERMS

AGRICULTURE entails all operations performed on a "farm" in connection with planting, growing, and harvesting of crops; raising and feeding of livestock and poultry, and management. All operations in connection with preparation of farm products for market where the preparation does not alter the form of the product and transportation to the first delivery point. In Hawaii, the first delivery point is defined as the processing plant or packinghouse door or other receivers' establishment for marketings on the island of production. For off-island marketings, the first delivery point is generally the shipper's warehouse.

FARM is a place with estimated (or expected) annual sales of agricultural products of at least \$1,000.

CROP PRODUCTION is the estimated amount of crop harvested and transferred at the first delivery point. Production estimates of vegetables and fruits include the quantity for fresh market and processing use.

ACREAGE IN CROP is the total acreage standing in a specific crop regardless of age or condition unless it has been declared abandoned by the operator.

ACREAGE HARVESTED is the total area harvested or partially harvested during the reporting period. A permanent or semi-permanent planting that was harvested for only a portion of the year is counted in its entirety. Acreage lost before maturity due to natural or economic factors is not included. Acreage harvested and planted repeatedly during the year is counted each time.

YIELD is the average production per acre of merchantable quality harvested and sold or utilized. This is derived by dividing total production by harvested acres.

LIVESTOCK OPERATION is defined as a place that has one or more head of the species on hand at any time during the year. It does not have to meet the definition of a farm.

LIVESTOCK PRODUCTION is the estimated amount of livestock and livestock products sold. This includes allowance for amount used on farms where produced.

FARM PRICE is a computed price to value agricultural production which may or may not reflect the average price at which actual transfer of ownership took place but which is comparable with the definition of "agriculture". See "agriculture" for the definition of pricing point.

MARKET SUPPLY includes pounds of product sold in Hawaii to both Armed Forces and civilians (outshipments excluded) plus products shipped in for civilian use. Direct inshipments to the Armed Forces are excluded.

SAMPLING METHODS AND ESTIMATION

The Hawaii Agricultural Statistics Service uses a variety of sampling techniques to produce current agricultural statistics about crops, livestock, prices, farm labor, and other information relating to the agricultural economy.

Data is collected, summarized and estimates are prepared. These estimates then pass through the Agricultural Statistics Board of the U. S. Department of Agriculture where, for major items, Hawaii estimates become part of National totals and enter the official data base for agriculture. National and State estimates are published according to a schedule set one year in advance.

The Hawaii Agricultural Statistics Service conducts many of its surveys by virtually complete **ENUMERATION** of certain parts of the population. This is unusual compared to procedures in other states but is feasible in Hawaii due to the relatively small size of certain categories of the farm universe or the extreme concentration of ownership.

LIST SAMPLING is a common means of data collection. Lists of farm operators are well suited for the low cost collection of information by mail. Supplementary information is included within the frame that allows the use of efficient stratified sample designs. A major disadvantage of this method is the constant change in the list frame which can never be perfect. In Hawaii, cattle, hog, macadamia nut and coffee surveys are examples of stratified list sample designs.

AREA FRAME SAMPLING can be used alone or in conjunction with the list frame. The frame consists of an aggregation of identifiable units of land or segments which may be sampled. The frame is complete and does not suffer the type of deterioration over time as does a list frame.

MULTIPLE-FRAME SAMPLING is the use of two frames. It takes advantage of the best attributes of the area frame and the list frame, produces unbiased estimates and allows measurement of the sampling error.

OBJECTIVE YIELD SURVEYS provide information from direct counts, measurements and weights of the crop made from small plots in a probability selection of sample fields.

ADMINISTRATIVE DATA is used in addition to producer surveys to establish final production and marketings. These include processor receipts, slaughter, vacuum cooler volume, and inspections. Unloads at Honolulu and wholesale prices as reported by the Market Analysis and News Branch, are an important check data source.



REPORTS

Title and Description	Release date
CROPS	
AVOCADOS : Annual summary of acreage, yield, production, farm price, and value	May
- Monthly report on sales, farm price, and production forecast	Last week of the month May
- Preliminary season estimates of acreage, yield, production, farm price, and value	December August
- Annual summary of fresh and processed fruit production, acreage, farm price, and value	September August
intentions for next season	August June
HERBS: Annual summary of fresh production, farm price, and value	August
- Preliminary season estimates of acreage, yield, production, farm price, and value	January July
PAPAYAS: Data on acreage, utilization, and farm price	Mid-month February
SEED CROP: Annual summary of acreage, production, farm price, and value	October
SUGARCANE: Estimates of acreage and production for all major U.S. producing areas	August-November
- Quarterly summary of taro milled for poi	Jan., Apr., Jul., Oct.
varieties	January
 Monthly summary of acreage, sales, and farm price for selected major vegetables and melons. Includes forecast of production and harvested acreage Annual summary of acreage, production, and value for all vegetables and melons 	Second week of month May
FLORICULTURE AND NURSERY PRODUCTS	
FLORICULTURE AND NURSERY PRODUCTS: Annual summary of area, production, and value POINSETTIAS: Fall report of plant inventory and past year sales	June October
LIVESTOCK	
LIVESTOCK REVIEW: Monthly hog and cattle slaughter, cattle outshipment, pasture conditions, number of milk cows and milk production, number of layers and egg production, and farm prices CATTLE: Annual report of inventory and calf crop as of January 1	Last week of month February January
HONEY: Annual summary of colonies, production, yield, farm price, and value	February
OTHER PUBLICATIONS	
AQUACULTURE: Summary of operations, production, and value	September
stations FARM LABOR: Quarterly report on number of workers by type and average wage rates STATISTICS OF HAWAII AGRICULTURE: A statistical summary of the State's agricultural sector	First working day of week Feb., May, Aug., Nov. October

To order: Any of the above reports may be obtained by contacting the Hawaii Agricultural Statistics Service, P.O. Box 22159, Honolulu, HI 96823-2159, (808) 973-9588. Most of our publications are available on the Internet at: http://www.nass.usda.gov/hi/rlsetoc.htm.

DIRECTORY FOR INFORMATION

Additional Information relating to U.S. and World Agriculture can be obtained by contacting the following USDA economic agencies:

National Agricultural Statistics Service (NASS): NASS reports estimate production, stocks, inventories, disposition, utilization, and prices of agricultural commodities, and other items such as labor and farm numbers.

Economic Research Service (ERS): ERS situation and outlook reports and periodicals analyze the current situation and forecast market conditions. ERS monographs offer economic analysis in the areas of trade, production, rural development, farm inputs, and other topics.

World Agricultural Board (WAOB): WAOB issues regular forecasts of U.S. and world supply and demand prospects for major agricultural commodities.

For a free catalog that lists the products available from NASS, ERS, and WAOB call the **toll free** order desk at **1-800-999-6779**.

93

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PHOTOGRAPHY ACKNOWLEDGEMENTS

Cover photo: Romaine lettuce fields on the Kiyotsugu Hirako farm, Waimea (Kamuela)

Island of Hawaii. Courtesy of Dwight Sato, Cooperative Extension Service, University of Hawaii at Manoa, College of Tropical Agriculture and Human

Resources

General summary: Taro fields, courtesy of the Hawaii Department of Agriculture staff,

page 2.

Fruits: Mangoes, courtesy of the Hawaii Department of Agriculture staff, page 35.

Vegetable, Melon,

and Taro: Specialty crops farmer Dean J. Okimoto, Nalo Farms, Inc., Waimanalo,

Oahu, Hawaii. Courtesy of the Hawaii Department of Agriculture staff,

page 46.

Special Statistics: Vegetable farm, courtesy of the Hawaii Department of Agriculture staff,

page 58.